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SUPPLEMENT TO REPORT NO.

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The attached report is a summarized translation from the Polish, describing thermal smelting research in Poland. The attached copy may be retained by you.

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Thermal Research in Poland. Approved For Release 2002/01/04 : CIA-RDP83-00415R012400100002-0

Extensive thermal research in metal smelting is done at the Chief Metallurgical Institute (G.I.M.) in Gliwice, Poland. The unit doing this research consists of four sections: a) Laboratory Section (under Eng. Zuzanna Szklarska), b) Industrial Fuel Section (under Eng. Franciszek Bytrus), c) Industrial Furnace Section (position of chief is vacant) and d) Measurement Section (under Eng. Emil Ryaska).

A. Laboratory Section consists of three subsections 1) Analytical (under Eng. Szklarska), 2) Physical-chemistry (under Eng. Bieniossek) and 3) Industrial Water (under Mgr. Witold Krause) and 13 unassigned engineers.

1) Analytical Subsection analyses coal, coke, coke gas, producer gas, and furnace gas ('dalgas', which is a mixture of 80% of coke gas and 20% of producer gas). Present tendency is to eliminate the production of producer gas in favor of coke gas. One cubic meter of producer gas is equal to 1,200 kg/calories whereas coke gas is equal to about 4,000 kg/calories.

2) Physical-Chemistry Subsection occupies itself with experiments on fuel values, heat of burning, heat production, heat absorption, value of coke, density of industrial gases. Experiments follow Western practices; the only Russian method used is that of Saponnikov-Roga. Experiments follow a certain order established by the G.I.M. directorate and are submitted on a sheet of paper stamped with a triangular stamp reading 'Pilne i Powa Kolejka!' (Urgent-Priority Handling) or are without any stamp. The urgent experiments are taken first, the regular experimental projects according to date of submission. One of the recent urgent experimental projects was submitted by BIPROCHEM (Biuro Projektowania Aparatury Chemicznej, Planning Bureau for Chemical Equipment) and pertained to the determination of the absorption properties of ammonium tri-arsenate (trio-arsenian-amon). In addition the subsection is engaged in theoretical research on the production of high-grade smelting coke from poor-coking coal.

3) Industrial Water Subsection. It is the main duty of this subsection to improve the acknowledged poor state of boiler water which is caused by the lack of technicians. This subsection lately made surveys in Smelter 'I Maj' in Gliwice, in Smelter 'Zygmont' in Lagiewniki, and in Smelter 'Poko' in Nowy-Bytom. The section is also engaged in experimenting with new methods of water softening. Especially good results were obtained by using Escarbo which utilizes the principal of ionic electrolysis (Wundeniacez Jonowy). Escarbo was invented by the Pole Jurkiewicz and it is planned to produce it commercially because it is considered superior to the Western Zeolite type of water softener. Escarbo is a special type of coal which has been subjected to oleum (H_2SO_4 saturated with SO_2 or 20-60% SO_3). The theoretical research on Escarbo was carried out at the Coal Institute in Katowice, Ulica Katowicka. Part of the findings were published in the Institute bulletin.

B. Industrial Fuel Section. It consisted of its chief and 3 research men who in the late summer 1951 were inducted into the army, leaving the chief alone. The section theoretically consists of 3 subsections: Solid fuels, Liquid fuels, and gaseous fuels; the last two subsections have no workers.

Solid Fuels Subsection engages in research on coal and coke. Objective is to obtain high-grade coke from semi-coking coal. Part of the research was published in publications of the G.I.M. Other parts of the research were considered 'State Secret'. Another aim of this subsection is to investigate the influence of non-organic admixtures on coke (siliceous earth, calcium oxide, iron oxide, magnesium oxide, aluminum oxide, m oxide). Also research was made (successfully) on 'two-stage' (dwo-etapowy)

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being part of material subjected to de-gassing under 500-600° Centigrade. The resulting 'half-coke' is ground and mixed with 'wsadowy' (?) coal.

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C. Industrial Furnace Section is divided into 3 subsections: smelting, coking and heating.

1) Smelting Furnace Subsection is concerned with the carbonization of flame in the Martens furnace.

2) Coking Furnace Subsection. Until 1949 little research had been done and Poland was totally dependent for this type of furnace on the West. Since then much research has been undertaken. (Source claims that the Germans heated up a newly started coke plant in 90 days, the Soviets in 60 days, and that the Poles have found a method to do it in 40 days without harming the ovens. He claims that three coke plants of this type were established in Poland, two in Makoszowy and one in Gliwice.

3) Heating Furnace Subsection is headed by Eng. Josef Klimek. Investigations are made in this section to determine the causes of faulty heating.

D. Measurements Section is divided into three subsections: Measurements (under Eng. Klimek), Automatic (under Eng. Ryszka) and Standardization (?) (Cechownieza) Station (under Eng. Zbigniew Rychlik).

1) Measurements Subsection has to do with thermal measurements for industrial plants which request it. A recent undertaking was for the Administration of the Ceramic Industry in Bobrowniki near Bedzin and concerned a Hoffmann furnace. Also work was undertaken for the Smeltery Bobrek near Bytom.

2) Automatic Subsection was started in May 1951. It set up the automatic control devices on the large furnace B in the Kosciuszko Smeltery in Chorzow, and on the Martens furnace in the Dzierzynski Smeltery in Dabrowa Cornieza. Eng. Ryszka has been working on a rotameter of his own invention. It is said to be superior to those imported from England. It is now ready for industrial production.

3) Standardization (?) (Cechownieza) Station is engaged in the (cechowanie) of measuring instruments for the G.I.M. and for other industrial institutions.

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